Socio-economic factors influencing demand for credit facilities among fish farmers in Oyo State, Nigeria

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Abstract

This study assessed the level at which fish farmers demand for credit loans, the terms and conditions for seeking credit facilities as well as the factors that influence seeking credit among fish farmers in Oyo State. A three-stage random sampling approach was adopted in selecting the respondents for the study. Simple descriptive statistics such as frequency counts and percentages were used to analyze the characteristics of seeking credit among fish farmers. Likewise, Likert Scale was used to analyze the level at which the respondents seek for credit facilities while Logit Model was used to determine the factors influencing seeking credit. The study concluded that interest rate and conditions for producing guarantors were the main challenges facing the fish farmers in obtaining loan facility. Further, loan repayment through family and friends was usually irregular possibly because of close relationship between the lenders and borrowers. The study therefore recommended that the financial institutions and other medium should reduce their interest rates so that fish farmers would be able to pay back easily. Likewise, Government should initiate credit borrowing friendly policies that will reduce bureaucratic bottlenecks that are usually associated with credit access through banks and other related financial agencies in order to encourage easy access to credit by the farmers.

Key words: fish farming, factor, demand, credit, interest rate, accessibility

Introduction

Fish farming, otherwise called aquaculture remains not only one of the best farming practices but also one of the most growing investments in Nigeria (eFarmers, 2017). Nigeria has gone beyond catching fish in ponds or streams and selling at the local market because fish farming in Nigeria has steadily increased over time as farmers currently produce the fishes in their farms and at the household level. This development has paved way for the control of fish farmers' output and revenue as fresh and existing farmers are anticipating commencing or expanding their production capacity due to the emerging economic prospect that the business portends in terms of sales and overall profit (eFarmers, 2017).

In Nigeria, fish farming is also a great attraction for foreign investments for the citizens and the country as a whole. Since fish farming business

has secured an unwavering and enviable place at the global market, so many foreign investors may want to invest their money into it in a large scale. The implication of this is that Nigerians will have a chance to build better and larger pools with new technologies and breed some new types of fish. In addition, fish farming is one of the promising ventures that any business minded person who wants to earn a fortune in the agricultural sector can dabble into. Though, fish breeding requires substantial initial capital as not everybody can have enough money to establish it from base level or acquiring another person's business. Yet, all these investments are normally returned in short period by the success of the business. The investors have not been able to meet the demand of fresh fish of a high quality not only in big department stores but also at the local markets. Hence, the ever-rising fish farming investments across the country and its ensuing economic fortunes (Legit, 2018).

Furthermore, credit has been considered not only as one of the critical inputs in agriculture, but also is regarded as an effective means of economic transformation and poverty alleviation. The performance of the agricultural sector depends to a large extent on the availability of credit. Credit affects the performance of agriculture by providing resources for the purchases of inputs and adoption of new technology. Credit plays a crucial role in amplifying the development of agriculture and the rural economy (Nwankwo & Bokelmann, 2008).

Agricultural loan can be obtained from two sources which is formal and informal. Formal loan refers to money obtained through a credit facility from a registered financial institution. According to Central Bank of Nigeria (2018), the Agricultural system in Nigeria operates through four (4) broad categories of credit institutions acting as financial intermediaries. First is the Central Bank of Nigeria that is the ultimate coordinator of formal credit. The second is the banking sector comprising of all the commercial and merchant banks, and the specialized banks like the Bank of Agriculture (formerly Nigerian Agricultural, Cooperative and Rural Development Bank (NACRDB). The third set of credit institutions include the world bank assisted Agricultural Development Projects (ADP), River Basin Development Authority, State ministries, Cooperative organizations and nongovernmental organizations (NGOs). Fourthly, other credit institutions are the specialized credit/ credit enhancing institutions like the Nigerian Agricultural Insurance Corporation (NAIC) and microfinance banks.

Further, it is believed that the formal sources of credit are rarely, easily available to majority of the farmers because of their inability to meet the financial institutions' conditionality. It is also believed that for the farmers that are fortunate to have access to formal credit, a wide gap exists between the amount requested and the amount obtained from the lending institutions. This is borne out of the conviction by formal institutions that lending to agriculture is a risky business because its repayment can hardly be fully obtained (Kohansal & Mansori, 2009).

In addition, there is a growing concern that credit flow from the financial institutions under the scheme to farmers especially the livestock farmers in Southeast of Nigeria is poor leading to low output and consequently high prices of meat in their markets. This raises the question of the farmers' accessibility to formal loan which is accepted as the cheapest source of credit and their repayment performance of loans obtained from formal institutions in the area.

However, the inability of borrowers to repay amount of loans collected is crucial for the long-term sustenance of the credit institutions. It is thus against this backdrop emerge two main research objectives addressed in this study related to (i) the rate at which fish farmers seeking loans through various credit giving sources and (ii) the factors that influence seeking credit among fish farmers in the study area.

Materials and Methods

Study Area

The study was carried out in Oyo State which is an inland state in South-western Nigeria, with its capital at Ibadan. It is bounded in the north by Kwara State, in the east by Oyo State, in the

south by Ogun State and in the west partly by Ogun State and partly by the Republic of Benin. Oyo State covers approximately an area of 28,454 square kilometers and is ranked 14th by size (Agunwamba et al., 2009). The Climate is equatorial, notably with dry and wet seasons with relatively high humidity. The dry season lasts from November to March while the wet season starts from April and ends in October. Average daily temperature ranges between 25° C and 35° C, almost throughout the year (Agunwamba et al., 2009). The main occupation of the people of Oyo State is Agriculture. This study classified Oyo State into four main agro-ecological zones as adopted by Oyo Agricultural Development Programme (OYADEP). The zones are Ibadan/Ibarapa, Oyo, Oke-ogun and Ogbomoso zones (Rasheed & Adenike (2009). Some of the selected big fish farms in the study area include: Balogun Fish farm, Ibadan, Daenny Resources, Ibadan, Adeniyi Fish Farm, Ibadan, Jafokins Farms Limited, Ibadan, Ayodun Fish Farm, Ibadan, L.A Fisheries & Consultancy, Fish farm Oyo, Triton Talapia Fish Farm Oyo, Samson Fish Farm, Ogbomosho, Kayfas Fish farm, Saki, Adebolu Fish Farm, Iseyin,

Data collection

The data for this survey was collected between January 2021 and October. The survey involved three states with the South-western region of Nigeria: Ogun Osun and Oyo but this paper only used the data collected in Oyo State due to the concentration of big and corporate fish farms in the State. Data were collected in 10 villages sited around the rural areas of the State. The fish farms in these areas are situated around farmstead of agro-ecological area in the tropical rainforest. Oyo State is made up of 3 major ecological zones such as Ogbomosho/ Oyo, Oke-Ogun, and Ibadan/Ibarapa zones. So, villages were chosen in each of the zones based on the proportional to size method. Ibadan/Ibarapa zones being the largest zone in terms of the population and commercial activities particularly with respect to fish farming, one 5 villages were randomly selected while one fish farm was chosen in each of the 5 selected villages. In the Ogbomosho/Oyo and Oke-Ogun

zones, 3 and 2 fish farms were randomly selected respectively per village totaling 10 villages. In each village, 12 fish farmers were selected and a total of one hundred and twenty fish farmers were interviewed in the ten selected villages.

The survey adopted two approaches in collecting data, that is, Focus Group Discussions (FGD) with fish farmers groups in their respective zonal meetings. Later, some fish farmers were identified and interviewed based on the geographical locations and sizes of their farms. The interview session was accompanied by documentation of their socio-economic characteristics and credit facility related information through the use of structured questionnaires. Some of the information regarding loan collection that were taking into account were; rate of credit demand, sources of credit facility, terms and conditions for collection and repayment of loans and factors that influence collection of credit facilities among others.

Data analysis

Based on our objectives, we used descriptive statistics (frequency counts and percentages) to analyze the terms and conditions for demanding credit facilities while Likert scale descriptive analysis was used to investigate the rate at which the respondents seek credit through various sources. The index was made by means of a 5 point Likert scale as the rate were stated using 1-5 ordering scale (such as very high, high, moderate, low and very low). Different levels of participation were indicated by the respondents while their mean score across various sources were calculated while the ratio of the grand mean and the number of activities were determined. In addition, Logit model regression analysis was adopted to determine factors influencing demand for credit facility among the fish farmers in the study area.

Regarding the Logit model, many department variables are dichotomous in nature while many independent variables affecting them are measured at other levels, the logit model guarantees that the estimated probabilities are 0-1 range and they are non-linearly related to explanatory variables. The logit model as used by Mequanent et al. (2014) hypothesizes that the probability (P_i) of accessing credit facilities is a function of an index (Z_i),

where (Zi) is an inverse of the standard logistic cumulative function of Pi i.e.

$$P_i(y)=f(Z_i)P_i= \frac{1}{1+e^{-(\beta 1+\beta 2 X_i)}} \qquad (1)$$

$$1-P_i= \frac{1}{1+e^{-Z_i}} \qquad (2)$$

Then, the equation above can be expressed as:

$$\frac{P_i}{1-P} = \frac{1+e^{Z_i}}{1-e^{-Z}} \qquad (3)$$

Where L_i is log of odds ratio (logit), P_i is probability of demanding for credit, $1-P_i$ is probability of not demanding for credit.

Taking the natural log of the equation

$$L_i=\ln \frac{P_i}{1-P_i} = \beta_1+ \beta_2 X_i+...+ \beta_k \beta_k v_k \qquad (4)$$

Where Z = represents set of factors affecting credit accessibility; β = regression coefficient; U= error term

The explicit form of the equation is given by

$$Y=\alpha_0+\alpha_1 X_1+\alpha_2 X_2+\alpha_3 X_3+\alpha_4 X_4+ ...+\alpha_n X_n \qquad (5)$$

Where Y = food security / food insecure; α = coefficient of explanatory variables; X = vector of independent variables; X_1 is age of the respondent (in years), X_2 is marital status (Dummy, Male =1, Female =0), X_3 is education level (Formal education =1, Non-formal education =0), X_4 is gender of respondent (Dummy, Male =1, Female =0), X5 is household size (in number), X6 is interest rate (in percentage), X_7 is collateral security (landed property = 1, other assets = 0), X_8 is availability of credit (Credit is available =1, Credit is not available =0), X_9 is repayment term (At the beginning of season =1, At any other time=0),, X_{10} is fish farm size (in hectares), X_{11} is preference for credit source (Formal =1, informal=0).

Results and Discussion

Among various sources of credit facilities available to the respondents in the study area, banks is the most commonly used credit facility with 11.9% mean followed by the cooperatives societies with 4. 18% mean (Table 1). Bank source provided a very high possibility for the fish farmers to access funds particularly those that operate in medium and large scale capacities. There were a slight difference between the operations of banks and cooperative societies which serve as another veritable means of sourcing funds. Fish farmers enjoyed some degree of superficial flexibilities in cooperative societies than banks. Notwithstanding, some respondents took advantage of some orthodox means to source their funds such as money lenders and family and friends. Further, money lender was the less frequently used source perhaps due to its stern and crook terms and conditions for the repayment. So, it recorded a very low rate with a mean of 0.66 while fish farmers garnered more support through family and friends. Though, both sources remained less bureaucratic than the formal sources (banks and cooperative societies). In spite of less bureaucratic nature of these traditional means, majority of the respondents still patronized banks and cooperative societies to demand for credit facilities. The reason for this outcome might be due to the personality of the respondents as well as the sizes of their businesses.

Table 2 reflects terms and condition for demanding credit facilities based on ease of use of various collaterals. Overall, using guarantors as collateral was the easiest means to access funds as 100% of fish farmers in our survey produced guarantors to the banks, 98% to the cooperatives societies, 78% to the money lenders while 20% and 7% of the respondents produced collateral to family and friends and thrift respectively. Likewise, landed property was the second most useful collateral security adopted by the respondents in the study area. 80%, 67% and 35% of the fish farmers presented their landed properties as collateral to access credit facilities through banks, money lenders and cooperatives societies respectively. Family and friends and thrift accordingly seemed to receive less attention in terms of landed property as collateral. In addition, the result also revealed

that using jewelry as collateral was uncommon among the respondents in the study area.

With regard to interest rate as presented in Table 3, money lenders was found to be charging higher interest rate as 60% of the fish farmers who obtained loans through money lenders paid more than 20% on borrowed capital. Banks also charged high interest rate because about 40% of the fish farmers returned less or equal to 20% interest rates on their loans. The least among all these credit sources in terms of rate of interest were thrift which in most cases paid nothing or very less significant amount as interest rate as only 5% of the respondents were reported to have been paying less than 5% administrative charges on their thrift collection. This friendly condition made the respondent to explored thrift and family and friends in accessing funds in most cases.

Based on regular mode of obtaining loans and flexible terms and conditions that surround credit facility, the survey revealed that most fish farmers preferred obtaining their loans through thrift (84%, 86%), followed by cooperative societies (75%, 64%), banks (65%, 35%) and family and friends (7%, 81%) in that order. The most irregular and rigid source was money lender (80%, 83%) (see Table 4).

Further, most fish farmers (83%) suggested that repayment of loans obtained through family and friends was usually irregular. Though, its repayment was somehow flexible perhaps due to the fact that most family and friends usually exhibit some level of friendliness to their relatives and loved ones who collected credit facility. Conversely, the borrowers would also display some negligence to the attached terms and conditions perhaps due to the level of closeness between the borrowers and the lenders. The opposite of the situation being experienced through family and friend in terms of the repayment mode was the case for the money lenders. 94% of the fish farmers agreed that the stipulated conditions by the money lenders (94%), banks (79%), cooperative societies (36%) and thrift (25%) in that order were too rigid to comply with as reflected in Table 5.

Table 6 presents some other challenges that responsible for funds accessibility in the study area. In this regard, the study identified bureaucracy, insults received from the lenders during the process of accessing credit facilities and paucity of funds as some of the challenges. As far as banks are concerned, majority (53%) of those that attempted to seek loans from the banks grumbled seriously about bureaucratic tendencies being exhibited by the banks while 75% of the respondents criticized taking loans from family and friends as well as cooperative societies due to paucity of funds in their coffers. Similarly, most farmers (85%) disliked patronizing money lenders because of wanton insults that are usually meted out to the borrowers by the creditors. All these among many other challenges constituted major constraints that affect fund accessibility from different credit sources.

Logit model analysis was used to determine factors that influence the borrowing propensity of fish farmers in the study area (Table 7). The results showed that age, marital status, educational status, sex, family size were the policy driven variables that determine the borrowing propensity of the fish farmers in the study area. It is therefore safe to posit that the explanatory power of the estimated logit regression model is satisfactory and can be used to explain the prospect of accessing loan by the fish farmers in the study area. This result buttressed the findings of Osotimehin et al, (2011) that found that age, gender; education level and household size were included in the explanatory variables that influenced credit accessibility in South-western Nigeria. Also, this outcome is in agreement with some previous literature on the subject matter that included such demographic variables to explain the dependent variable (for example, Ashraf & Ibrahim, 2014; Obisesan & Akinlade, 2013; Balogun & Yusuf, 2011).

Concerning fish farmers' age distribution, it is significant at 1% with positive correlation sign which means that the older the fish farmers become, the more the chance of accessing credit through various credit sources. The reason for this is probably a sense of responsibility that are usually associated with maturity particularly with respect to loan repayment motive.

Concerning family size, even though this factor

Table 1. Rates of seeking loans among the respondents

Rate	Very high (%)	High (%)	Moderate (%)	Low (%)	Very low (%)	Mean (%)
Banks	21.9	17.1	10.1	7.1	3.5	11.94
Cooperatives	6.7	5.1	4.3	2.9	1.9	4.18
Money-lenders	1.4	0.9	0.6	0.3	0.1	0.66
Family & Friends	6.1	3.8	3.2	2.4	0.6	3.22

Source: Field survey, 2021

Table 2. Terms and conditions for demanding credit facilities based on collateral

Sources	Land (%)	Jewelry (%)	Promissory note (%)	Guarantors (%)
Banks	80	23	39	100
Cooperatives	35	5	41	98
Family & Friends	1		23	20
Thrift	4		17	7
Money lenders	37	31	52	78

Source: Field survey, 2021

Table 3. Terms and conditions for demanding credit facilities based on interest rate

Sources	≤5%	≤10%	≤15%	≤20%	>20%
Banks	5	19	21	40	35
Cooperatives	45	74	12	5	1
Family & Friends	6	4	2	1	1
Thrift	5				
Money lenders	15	35	45	51	60

Source: Field survey, 2021

Table 4. Terms and conditions for demanding credit facilities based on mode of obtainment

Sources	Regular (%)	Irregular (%)	Flexible (%)	Rigid (%)
Bank	65	35	35	65
Cooperatives	75	25	64	36
Family & Friends	7	76	81	19
Thrift	84	16	86	14
Money lenders	20	80	17	83

Source: Field survey, 2021

Table 5. Terms and conditions for demanding credit facilities based on repayment mode

Sources	Regular (%)	Irregular (%)	Flexible (%)	Rigid (%)
Bank	53	47	21	79
Cooperatives	55	45	64	36
Family & Friends	17	83	76	15
Thrift	85	15	75	25
Money lenders	75	25	6	94

Source: Field survey, 2021

Table 6. Terms and conditions for demanding credit facilities based on other challenges

Sources	Bureaucracy (%)	Insults (%)	Paucity of funds (%)
Bank	53	17	21
Cooperatives	35	15	63
Family & Friends	17	13	75
Thrift	5	14	15
Money lenders	15	85	26

Source: Field survey, 2021

Table 7. Factors that influence credit demand of fish farmers

Variables	Coefficient	Standard error	Marginal effect
Constant	-0.4481	0.2779	
Age of respondents (X_1)	0.0061**	0.0056	0.1069
Marital status (X_2)	-0.0008***	0.0081	0.4496
Educational status (X_3)	-0.0881*	0.0480	0.0666
Sex (X_4)	0.0925*	0.0904	0.5326
Family size (X_5)	0.0564*	0.0904	0.5326
Interest rate (X_6)	0.0100	0.0522	0.1058
Collateral security (X_7)	0.4800	1.0200	0.0911
Availability of credit (X_8)	0.0035**	0.7520	0.1320
Repayment term (X_9)	0.0209*	0.2002	0.9107
Fish farm size (X_{10})	-0.0061**	0.6700	0.2021
Credit source preference (X_{11})	0.0001	1.7000	0.1000
R^2	0.5900		
Log likelihood	-58.981		
N	120		
Chi-Squared	28.56		

Source: Field Survey, 2021
*Significant at 10%; ** 5% and ***1% probability level

may not have direct link with credit accessibility but at the same time if such population contribute family labour strength to the fish business, the prospect of boosting the business may in turn improve credit access from the creditors. This study outcome thus suggests that the higher the family size, the higher the chances of accessing loans.

Furthermore, in line with the a priory expectation, availability of credit is key to credit accessibility by the farmers. This factor is significant at 5% and has positive correlation with credit access. This can be easily explained by the fact that, all things being equal, more funds would be available for the farmers to get.

Regarding the repayment term factor, it is positively correlated and significant at 1%. Usually, there are dual conceptions for this factor because the easier the repayment terms, the easier the rate of credit access and vice-versa. Likewise, the farm size is another policy driven variable that influences credit access in the study area. However, based on this study result, this factor has negative correlation defying certain agricultural production economics principle which involves the study of factor-factor and product-product relationship, the size of the farm, returns to scale, credit and risk and uncertainty. Therefore, justifying the negative sign for this factor, it means that the fish farmers in the study area possibly encountered the problem associated with resource allocation and marginal productivity scenario.

Conclusion and Recommendations

In this paper, we assessed the rate at which the respondents seek credit facilities through various sources. Moreover, we analyzed factors that influence credit facilities demand among fish farmers using Logit models. Results show that banks are the most commonly used credit facility with 11.9% mean followed by the cooperatives societies with 4.2% mean. Furthermore, using guarantors as collateral was very important with regards to the rate at which loans could be accessed through banks, cooperative societies and money lenders in that order. Our findings also confirm that money lenders used to charge higher interest rate as 60% of the fish farmers who obtained loans through money lenders paid more than 20% on borrowed capital while most fish farmers preferred obtaining their loans through thrift. Further, loan repayment through family and friends was usually irregular possibly because of close relationship between the lenders and borrowers. In the same vein, this study confirm some other challenges such as bureaucracy, insults received from the lenders and paucity of funds as constraints that impeded loans accessibility in the study area. Lastly, the study concluded that age, marital status, educational status, sex, family size were the policy driven variables that determine the borrowing propensity of the fish farmers in the study area. Based on these findings, the study therefore recommended that the banks and money lenders should reduce their interest rates so that fish farmers would be able to pay back easily while all financial institutions and other related medium concerned should be friendly to their customers. Also, Government should initiate credit borrowing friendly policies that will reduce bureaucratic bottleneck that is usually associated with credit access through banks and other related financial agencies in order to encourage easy access to credit by the farmers.

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